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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,486	06/02/2006	Katsunori Asafusa	1070.46256X00	3585

20457 7590 10/06/2008
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EXAMINER

SAINT SURIN, JACQUES M

ART UNIT	PAPER NUMBER
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2856

MAIL DATE	DELIVERY MODE
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10/06/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,486	Applicant(s) ASAFUSA ET AL.	
	Examiner J M. SAINT SURIN	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-13, 16, 17 and 19 is/are rejected.
- 7) ☒ Claim(s) 4-8, 14, 15, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings filed on 06/02/06 are accepted by the Examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3, 9-13, 16-17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Asafusa et al. (US Patent 7,354,400 B2).

The applied reference has a common inventor instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35

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U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1 and 11, Asafusa et al. discloses an ultrasonic diagnostic apparatus (Fig. 1) comprising a probe (1) which transmits and receives ultrasonic waves to and from an object (subject, see: col. 9, line 6) to be inspected, a transmission means (3) which outputs transmission signals for driving the probe, a reception means (5) which processes reception signals received by the probe (1), and an image reconstruction means (15, see: col. 5, lines 40-42) which reconstructs an ultrasonic image using the reception signals outputted by the reception means (5), wherein the transmission means (3) creates and outputs the transmission signals corresponding to a composite modulation code sequence (col. 5, lines 46-57) composed from two or more modulation code sequences, and the reception means (5) is provided with a demodulator (11) which demodulates the modulation based on the composite modulation code sequence for the reception signals (col. 6, lines 4-13).

Regarding claim 11, it is similar in scope with claim 1 and therefore it is rejected for the reasons set forth for that claim. Furthermore, Asafusa et al. discloses FIG. 4 shows a method of the encoding transmission/reception repeated four times on one scan line and as shown in FIG. 4, an ultrasonic transmission beam scans inside of a subject by shifting the direction to transmit (scan line) toward the aperture and is repeatedly transmitted, see: col. 10, lines 62-66).

Regarding claims 2 and 12, Asafusa discloses the ultrasonic diagnostic apparatus according to claim 1, wherein the transmission means (3) generates the transmission signals by successively outputting waveforms on the basis of coefficients of code elements of the composite modulation code sequence (first encoding transmission/reception step for sequentially modulating, with an encoding set including a plurality of modulation codes in which at least two are in complementary relationship, and outputting a basic wave to a probe as an encoding drive signal, see: col. 1, lines 59-67). Regarding claim 12, Asafusa discloses as shown in FIG. 4, an ultrasonic transmission beam scans inside of a subject by shifting the direction to transmit (scan line) toward the aperture and is repeatedly transmitted, see: col. 10, lines 62-66).

Regarding claims 3 and 13, Asafusa discloses the ultrasonic diagnostic apparatus according to claim 1 or 2, wherein the composite modulation code sequence is a composite modulation code sequence composed from a first modulation code sequence and a second modulation code sequence, the demodulator comprises a first demodulator for demodulating the modulation based on the first modulation code sequence, and a second demodulator for demodulating the modulation based on the second modulation code sequence, and the reception signals outputted by the probe are demodulated by one of the first and second demodulators, and then further demodulated by the other demodulator (col. 2, lines 39-57).

Regarding claims 9 and 19, Asafusa discloses the ultrasonic diagnostic apparatus according to claim 1, wherein the transmission means comprises a code storage means (49) in which coefficients of multiple kinds of modulation code

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sequences are stored beforehand, a selection means (19) which selects two or more modulation code sequences from those stored in the code storage means (61) and a composing means which composes the two or more modulation code sequences with adjusting the coefficients of them to desired code intervals to generate a composite modulation code sequence (the example in which modulation encoding coefficients are obtained by calculations in advance and the modulation encoding coefficients are stored in the modulation encoding coefficient memory 49 was described, but a modulation encoding coefficient may be calculated and obtained by a CPU, for example, based on information on the type of modulation code, code length and code interval instead, a transmission waveform may be calculated and obtained by a CPU for transmission waveform pulse waveforms based on the modulation encoding coefficient (see: col. 16, lines 40-49).

Regarding claim 10, Asafusa discloses the ultrasonic diagnostic apparatus according to claim 1, wherein the transmission means (3) comprises a composite code storage means (49) in which multiple kinds of the composite modulation code sequences are stored beforehand, and a selection means (19) which selects one composite modulation code sequence from those stored in the composite code storage means (the code type selector 43, code length selector 45 and code interval selector 47 may include a register and a selector; the modulation encoding coefficient memory 49 may include a storage element such as an SRAM and a DRAM; the waveform selector 41 includes an envelope selector 51, a number-of-waves selector 53 and a transmission waveform selection memory 55; the transmission waveform selection

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memory 55 holds data on waveforms obtained by calculations in advance (col. 6, lines 45-58).

Regarding claim 16, Asafusa discloses the ultrasonic diagnostic apparatus according to claim 11 or 12, wherein the reception means (5) comprises a filter (29) for eliminating fundamental wave components from the reception signals demodulated by the first and second demodulators (11, 35).

Allowable Subject Matter

5. Claims 4-8, 14, 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record taken alone and in combination does not disclose “wherein the coefficients of the code elements of the first and second modulation code sequences are two values of +1 and -1, and the phase shift amounts as the values of the code elements of the composite modulation code sequence are phase shift amounts corresponding to degrees of multiplied -1 in multiplication of the first and second modulation code elements” as recited in claim 14 and “wherein the code interval of the first modulation code sequence is larger than the code interval of the second modulation code sequence, and the first and second demodulators are disposed so that the reception signals outputted from the probe should be demodulated by the first demodulator and then demodulated by the second demodulator” As recited in claim 4. In addition, the prior art does not disclose “wherein

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the probe comprises multiple oscillators, the reception signals are outputted from each of the multiple oscillators, the reception means comprises a phasing addition means which performs phasing of the reception signals outputted from each oscillator and adds them the first demodulator is disposed at a position for demodulating the reception signals before phasing addition thereof performed in the phasing addition means, and the second demodulator is disposed at a position for demodulating the reception signals after phasing addition in the phasing addition means” as recited in claim 5.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J M. SAINT SURIN whose telephone number is (571)272-2206. The examiner can normally be reached on Mondays to Fridays between 9:30 A.M and 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron L. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacques M SAINT SURIN/

Examiner, Art Unit 2856

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856